

CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	9299	2	71-9299	USA/9299/B(U)-85	1 OF	3

## 2. PREAMBLE

- a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."
- b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

## 3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

- a. ISSUED TO (*Name and Address*)
- b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

MDS Nordion  
447 March Road  
Kanata, Ontario, Canada K2K 1X8

MDS Nordion application dated  
November 29, 2006, as supplemented.

## 4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

## 5.

## (a) Packaging

- (1) Model No.: F-423
- (2) Description

A double-walled welded stainless steel overpack for shipping sealed sources within the Gammacell 220 (GC220) gamma irradiator. The packaging consists of concentric box-like stainless steel shells separated by an annulus of rigid polyurethane foam. The overall overpack wall thickness is eight inches on the sides, twelve inches on the front and rear, and four inches on the base. The overpack lid is constructed of a sheet of 1/2-inch thick stainless steel on top, a sheet of 1/4-inch thick cold-rolled steel on the bottom, and 4-inches of polyurethane foam in between. The package is closed by bolting the lid to the body with 40 one-inch diameter bolts.

The GC220 irradiator is positioned inside the cavity formed by the inner stainless steel shell, along with an inner steel frame and a rigid polyurethane foam bonnet and lower crush pad. Shielding is provided by the GC220 irradiator, which is a welded steel lead-filled device. The GC220 is a lead-filled shielding head mounted on a steel stand. The GC220 shielding head consists of inner and outer steel shells with lead in between. The nominal lead thickness is 10 inches. The GC220 has an irregular shape, however, the base is 60-inches long by 40-inches wide. In its shipping configuration, the GC220 is 58-inches high. The GC220 shielding plug is welded from 304 stainless steel and lead filled. The GC220 drawer is welded from 304 stainless steel and is lead filled.

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
9299	2	71-9299	USA/9299/B(U)-85	2 OF	3

5(a) (2) (continued)

The maximum package weight (including contents) is 21,000 lbs (9,524 kgs). The approximate package component dimensions and weights are as follows:

Component	Weight (lbs / kg)	Nominal Dimensions (L x W x H inches)
Overpack Lid	1,036 / 470	67.50 x 55.00 x 4.75
Inner Frame	1,257 / 570	60.50 x 48.00 x 54.13
Bonnet	871 / 395	52.00 x 41.50 x 36.75
GC220	8,576 / 3,890	60.00 x 40.00 x 58.00
Overpack Body	8,708 / 3,950	86.50 x 66.00 x 80.37
Lower Crush Pad	386 / 175	47.00 x 31.00 x 7.00

(3) Drawings

The packaging is constructed in accordance with MDS Nordion Drawing No. F642301-001, Sheet 1, Revision G, and Sheet 2, Revision D.

(b) Contents

(1) Type and form of material

- Cobalt-60 as sealed sources that meet the requirements of special form radioactive material.
- Cobalt-60 as sealed sources described in Condition No. 6 below.

(2) Maximum quantity of material per package

26,000 curies, a maximum of 48 sources per package, and a maximum of 5,000 curies per source.

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	9299	2	71-9299	USA/9299/B(U)-85	3 OF	3

6. Sealed sources limited to MDS Nordion sealed source capsules manufactured before February 19, 1973: C-166, C-167, and C-185. In addition, these sources must meet the following:
- (a) Sources must conform to the specifications identified in the application in Figure 4.2 for the C-166 source, Figure 4.3 for the C-167 source, and Figure 4.4 for the C-185 source;
  - (b) Sources must be shown to not be leaking within six months prior to shipment; and
  - (c) Sources must not have been damaged during their service life.
7. In addition to the requirements of Subpart G of 10 CFR Part 71:
- (a) The package must be prepared for shipment and operated in accordance with the Operating Procedures in Chapter 7 of the application.
  - (b) Each packaging must be acceptance tested and maintained in accordance with the Acceptance Tests and Maintenance Program in Chapter 8 of the application.
8. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.
9. Revision No. 1 of this certificate may be used until March 31, 2008.
10. Expiration date: March 31, 2012.

**REFERENCES**

MDS Nordion application dated November 29, 2006.

Supplement dated: February 8, 2007.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION



Robert A. Nelson, Chief  
Licensing Branch  
Division of Spent Fuel Storage  
and Transportation  
Office of Nuclear Material Safety  
and Safeguards

Date

3/15/07



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

**SAFETY EVALUATION REPORT**  
**Docket No. 71-9299**  
**Model No. F-423 Package**  
**Certificate of Compliance No. 9299**  
**Revision No. 2**

**SUMMARY**

By application dated June 15, 2006, as supplemented November 29, 2006, and February 8, 2007, MDS Nordion requested renewal of Certificate of Compliance No. 9299, for the Model No. F-423 package. In accordance with the requirements of 10 CFR 71.38(c), Nordion provided a consolidated application for the package design. No design changes were requested for the package. Minor editorial changes were included in the consolidated application.

Based on the statements and representations in the application, as supplemented, the staff agrees that the changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71. The Certificate of Compliance has been renewed for a 5-year term that expires on March 31, 2012.

**EVALUATION**

The staff reviewed the consolidated application and confirmed that it incorporated changes to the program that were previously included in the Certificate by reference.

Condition No. 5(a)(2) specifies the maximum package weight and includes a table of approximate weights and dimensions of package components. This condition was revised to reflect updated information as specified in the packaging drawings. Condition No. 8 was revised to reference the current general license section number (10 CFR 71.17). Condition No. 9 was updated to show that Revision No. 1 of the certificate may be used for a period of approximately one year. Condition No. 10 was revised to show the new expiration date of the Certificate.

**CONCLUSION**

The Certificate of Compliance has been renewed for a 5-year term that expires on March 31, 2012. The staff agrees that the changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9299,  
Revision No. 2, on March 15, 2007